

Work Order ID 159891

159891

Page 1

Wednesday, April 19, 2017 1:40:55 PM

Item ID: D5350-043 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Aft Beam Assembly
 Start Date: 4/21/2017 Start Qty: 4.00 *4* Cust Item ID:
 Required Date: 5/3/2017 Req'd Qty: 4.00 *4* Customer:
 Reference: SCHEDULED

Approvals: Process Plan: 21 Date: APR 19 2017 Tooling: _____ Date: _____ Run Start *NR1*
 QC: 9-89 Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D5350	D								

100 Cut blanks as per folio 0.00

100

Bandsaw Memo 0.33
 Jeaspa Bandsaw Cut blank at 66.800"

5 6 #17-04-29

110 0.00

110

HAAS 4 Memo 5.66
 HAAS CNC vertical machine #4 1-Machine per folio FB448 (D5350-3)
 DWG REV: P
 FOLIO REV: D

4 1 #17-04-30

2- Deburr and break all sharp edge as per dwg.

PTO →

DQA:

Date: 2017-07-10

DART
AEROSPACE

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: JUL 04 2017

Work Order update only

Work Order: 159891		DISPOSITION		AGAINST DEPARTMENT/PROCESS			
Part No. D5350-3		Rework ☐		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐
NCR No. 17-6498		Scrap ☒		Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☒	Quality ☐
		Use-as-is ☐		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
Suspected Unapproved ☐		Large Fab ☐		Composite ☐		Supplier ☐	
Date: 17-05-01	Step #: 110	QTY Effective: 1				MRB (QS1042) Approval	
Description Work Order Deviation		Disposition				DAS 9 9-89 17-05-03	
Wrong tool call up in program		Scrap + replace				Completed By	
R.C. operator not double checking tool program.		tool change in program.				17-05-01	
						Lead hand / Supervisor	
						Approval Verification	
						DAS 9 9-89 17-05-03	
						QC / QA Coordinator	
						DAS Approval	
						9 9-89 17-05-03	
Root Cause		FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☒	Bending ☐	Set-up ☐	Folio/Program ☒	Outside Dimensions ☐		
Doc/Data ☒	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☒	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐						
Misidentified ☐	Past Due ☐	OTHER:					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

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Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 4/21/2017 **Start Qty:** 4.00 ***4***

Cust Item ID:

Required Date: 5/3/2017 **Req'd Qty:** 4.00 ****1****

Customer:

Reference: SCHEDULED

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run	Start	*NR1*
	Stop	*NR2*

[illegible]

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 159891

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Item ID: D5350-043 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Aft Beam Assembly
Start Date: 4/21/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 5/3/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference: SCHEDULED

Approvals: Process Plan: Date: Tooling: Date: Run Start ***NR1***
QC: Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC7-Inspect Chemical Conversion Coat	0.00							
180									
QC	Memo	0.04							
Quality Control									
190	White Gloss(Ref:4.3.5.1) per OSI005 4.3-Alum	0.00							
190									
Powdercoat	Memo	0.64							
Powder Coating	MASK HOLES AS PER NOTE 8 SHEET 4								
	START TIME: <u>2120</u>								
	OVEN TEMPERATURE: <u>325</u>								
	FINISH TIME: <u>2150</u>								
200	QC3- Inspect Part Finish	0.00							
200									
QC	Memo	0.04							
Quality Control									

DAS
38
9-89
MAY 12 2017

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Stop *NR2*

[illegible]

159891

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Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Start Date: 4/21/2017 **Start Qty:** 4.00

4

Required Date: 5/3/2017 Req'd Qty: 4.00

4

Customer:

Reference: SCHEDULED

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

OC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Stop ***NR2***

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code
---------	--------	-----------

Accept Qty	Reject Qty	Reject Number	Insp. / Stamp
---------------	---------------	------------------	------------------

240

QC21- Final Inspection - Work Order Release

0.00

240

OC

Memo

0.40

Quality Control

DAS
21
9-89

MAY 17 2017

Picklist Print

Page 1

Wednesday, April 19, 2017 1:41:00 PM

Work Order ID: 159891

159891

Parent Item: D5350-043

D5350-043

Parent Item Name: Aft Beam Assembly

Start Date: 4/21/2017

Required Date: 5/3/2017

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 15.12.11 NEW ISSUE DD VERF:JLM IPP
REV:B 16.01.25 rev.a dwg DD VERF:JLM IPP REV:C
16.06.30 DWG REV.B DD VERF:JLM IPP REV:D 17.01.09
DWG REV.c DD VERF:JLM IPP REV:E DWG. REV.D
17/04/11 JFS VERIFIED BY: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
CBL-1240		Purchased	No			210	f	262.4127	5.42	22.82105			
CBI -1240									**			MAY 16 2017	DAS 19 9-89
Cable													

Location	Loc Qty	Loc Code
GA	262.4127488	
m136491	162.412749	
m136852	100	

22.83

FOR D2690-8
CUT TO 13.000"

CBL-460

Purchased

No

210

Each

10.0000

10

40

MAY 16 2017

**DAS
19
9-89**

CBI -460

Loop Sleeve

Location	Loc Qty	Loc Code
GA	10	
m136852	10	

40

FOR D2690-8

D5346-3

Manufactured

No

210

Each

10.0000

4

16

54

D5346-3

Bushing

Location	Loc Qty	Loc Code
ST165	10	
159256	10	

161327

Picklist Print

Wednesday, April 19, 2017 1:41:01 PM

Page 2

Work Order ID: 159891

159891

Parent Item: D5350-043

D5350-043

Parent Item Name: Aft Beam Assembly

Start Date: 4/21/2017

Required Date: 5/3/2017

Start Qty: 4.00

Required Qty: 4.00

M6061T6B1.000X06.00
0

Purchased No

100 f 21.0300 5.57 23.45263

M6061T6B1 000X06 000

6061T6 BAR 1.00 X 6.00

**

M6061T6B1.000X06.000
M137365

Location

Loc Qty

Loc Code

MAT003

21.03

m129639

4.5

m130013

2.7

m134705

7.83

m136108

6

M137365

210 Each

0.0000

1 4

**

160180

MAY 12 2017

DAS

6

D5350-5

Manufactured No

D5350-5

Adapter

MS17984-C412

Purchased No

210 Each

6.0000

2 8

**

MS17984-C412

Pin, Quick Release

Location

Loc Qty

Loc Code

ST315

6

m136593

2

m137280

4

210 Each

2.0000

1 4

**

MS17984-C418

Purchased No

MS17984-C418

QUICK RELEASE PIN

Location

Loc Qty

Loc Code

FG

1

123482

1

ST315

1

152031

1

210 Each

0.0000

2 8

**

MS17984-C517

Purchased No

MS17984-C517

Pin, Quick Release

MAY 12 2017

DAS

6

9-89

137412

MAY 17 2017

DAS

19

9-89

M137528 (8)

Wednesday, April 19, 2017 1:41:01 PM

Shop Packet Print

Page 2

DART AEROSPACE LTD		Work Order: 159891
Description: R66 Beam Assembly		Part Number: D5350-3
Inspection Dwg: 5350	Rev: D	Page 1 of 1

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
.80	± .03	.797	✓		Vern LPO9	
1.00	± .03	.998				
1.60	± .03	1.599				
2.12	± .03	2.119				
.65	± .03	.65				
1.90	± .03	1.900				
3.15	± .03	3.152				
2.43	± .03	2.425			↓	
18.98	± .03	18.98			tape	
33.10	± .03	33.10			↓	
33.59	± .03	33.59				
35.60	± .03	35.60			↓	
33.60	± .03	33.60				
1.50	± .03	1.500			Vern LPO9	
.70	± .02	.703			↓	
2.50	± .03	2.499				
.55	± .03	.545				
.35	± .03	.352				
.30	± .03	.302				
.280	+ .015 / - .005	.280			↓	
12.000	± .01	12.000			Vern CNC	
.62	± .03	.620			Vern LPO9	
5.42	± .03	5.408			Height gauge	
4.75	± .03	4.754			↓	
4.25	± .03	4.250				
3.54	± .03	3.542				
2.79	± .03	2.790			↓	
1.00	± .03	1.004			Vern	
3.88	± .03	3.875			↓	
.30	± .03	.299				
.35	± .03	.350			↓	
16.68	± .03	16.68			tape	

Measured by: P. J. 30	Checked by: D. a	DAS 66	QC Inspector:
Date:	Date: 17-05-03	9-99	Date:

Engineering Approval: (If necessary)	Date:
--	--------------

Rev	Date	Change	Revised by	Approved
B	14.07.31	New Issue	KJ	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

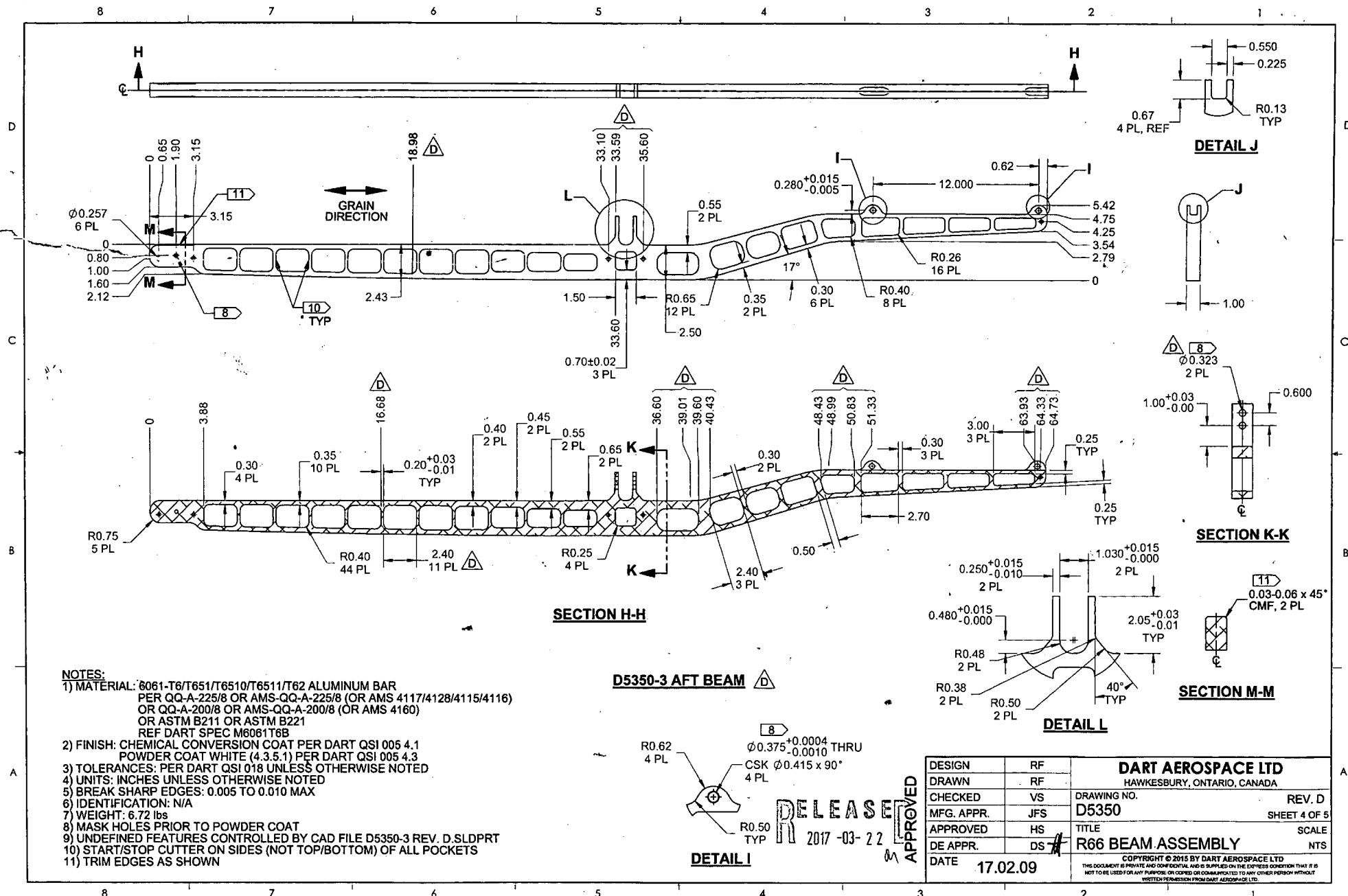
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
--	--	--	--	--	--

Date :	Step #:	QTY Effective :	MRB (QS1042) Approval
--------	---------	-----------------	-----------------------

Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

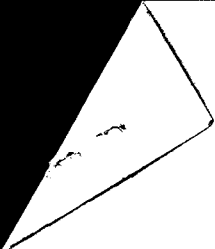
Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : ☐			
Misidentified ☐		Past Due ☐					



RELEASE
2017-03-22

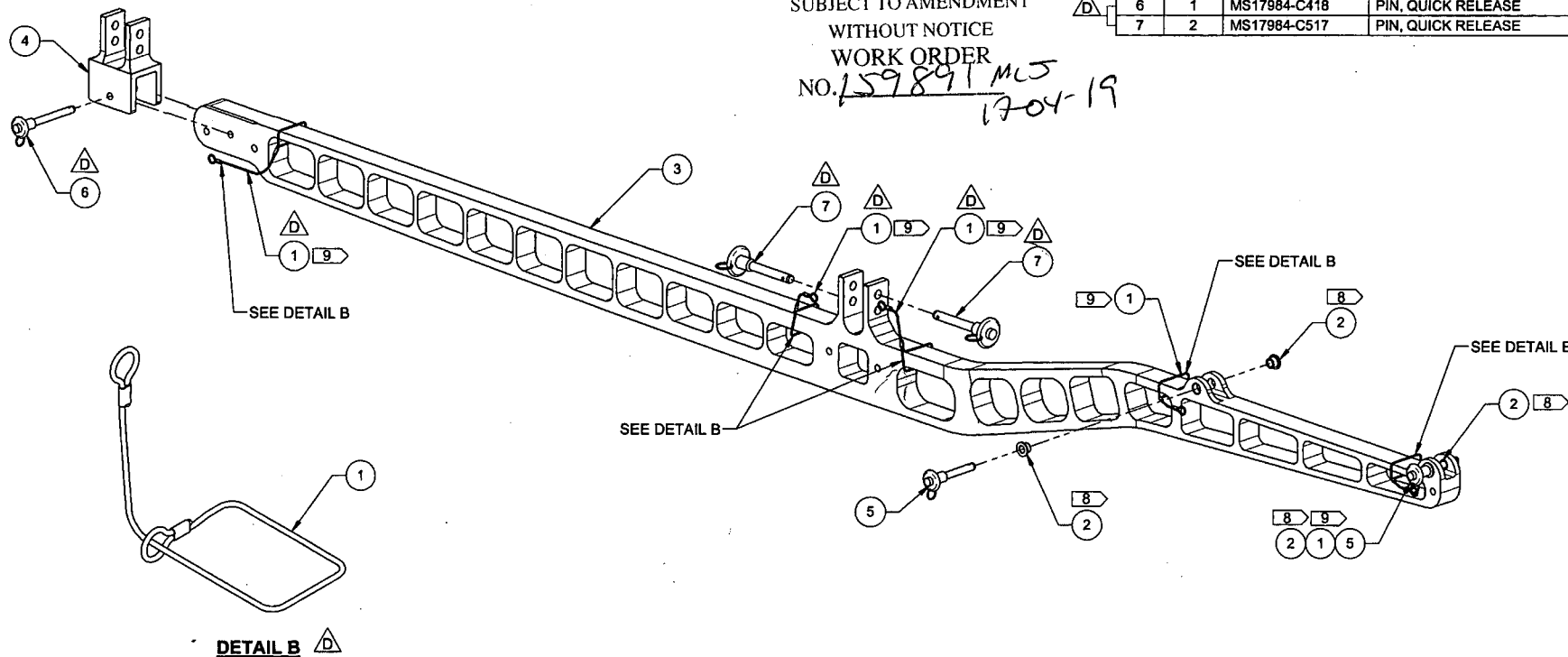
APPROVED

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	VS	DRAWING NO.	REV. D
MFG. APPR.	JFS	D5350	SHEET 4 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	R66 BEAM ASSEMBLY	NTS
DATE	17.02.09	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. ANY INFORMATION SUPPLIED ON THE EXPRESS OR IMPLIED CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.	



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 159891 MLJ
17-04-19

ITEM	QTY -043	P/N	DESCRIPTION
	X	D5350-043	R66 AFT CROSS BEAM ASSEMBLY
1	1	D2690-8	LANYARD ASSEMBLY
2	4	D5346-3	BUSHING
3	1	D5350-3	R66 AFT CROSS BEAM
4	1	D5350-5	ADAPTER
5	2	MS17984-C412	PIN, QUICK RELEASE
6	1	MS17984-C418	PIN, QUICK RELEASE
7	2	MS17984-C517	PIN, QUICK RELEASE



D5350-043 R66 AFT CROSS BEAM ASSEMBLY

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 7.10 lbs
- 8) PRESS FIT D5346-3 BUSHING INTO D5350-3 BEAM
- 9) ASSEMBLE D2690-8 WITH MS17984-C412/-C418/-C517 AS SHOWN

RELEASED
2017-03-22

APPROVED

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	VS	DRAWING NO.	REV. D
MFG. APPR.	JFS	D5350	SHEET 2 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	R66 BEAM ASSEMBLY	NTS
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